

AMENDMENTS

In the Claims:

The currently pending and amended claims are below. Please amend the claims following wherein amendment is indicated in parenthesis, wherein the deleted matter is shown by strikethrough, and wherein the added matter is shown by underlining.

1. (Currently amended) A method of obtaining site-specific gene replacement of a DNA of interest in a eukaryotic cell, comprising:
 - a) providing a eukaryotic cell that comprises a receptor construct, wherein the receptor construct comprises a receptor polynucleotide flanked by two or more copies of a irreversible recombination site (IRS), wherein the IRS comprises a first nucleic acid sequence;
 - b) introducing into the cell a donor construct that comprises a donor polynucleotide flanked by two or more copies of a irreversible complementary irreversible recombination site (CIRS), wherein the CIRS comprises a second nucleic acid sequence; and
 - c) contacting the receptor construct and the donor construct with an irreversible recombinase polypeptide;
 - d) wherein the irreversible recombinase catalyzes recombination between the nucleic acids of the IRS and the CIRS first and second types of recombination sites and replacement of the receptor polynucleotide with the donor polynucleotide, thereby forming a replacement construct.
2. (Original) The method of claim 1, wherein the donor construct is linear.
3. (Original) The method of claim 1, wherein the donor construct is a circular vector.
4. (Original) The method of claim 1, wherein the donor construct is a chromosome.
5. (Original) The method of claim 1, wherein the receptor construct is a chromosome.
6. (Currently amended) The method of claim 1, wherein the receptor construct comprises two copies of the IRS and the donor construct comprises two copies of the CIRS.

7. (Original) The method of claim 6, wherein the IRS are inverted with respect to each other and wherein the CIRS are inverted with respect to each other.
8. (Currently amended) The method of claim 6, wherein the donor polynucleotide further comprises a promoter operably linked to a DNA gene of interest.
9. (Currently amended) The method of claim 6, wherein the receptor construct further comprises a promoter that is adjacent to one copy of the IRS.
10. (Original) The method of claim 9, wherein the promoter is located in the 5 prime direction from the IRS.
11. (Original) The method of claim 9, wherein the receptor construct further comprises a second promoter operably linked to a selectable marker.
12. (Original) The method of claim 9, wherein the receptor polynucleotide or the donor polynucleotide further comprises a negative selectable marker.
13. (Original) The method of claim 9, wherein the receptor polynucleotide or the donor polynucleotide further comprises a nucleic acid encoding the irreversible recombinase polypeptide.
14. (Original) The method of claim 13, wherein the receptor polynucleotide comprises the nucleic acid encoding the irreversible recombinase polypeptide.
15. (Original) The method of claim 14, wherein the irreversible recombinase polypeptide is a φC31 integrase, a coliphage P4 recombinase, a coliphage lambda recombinase, a *Listeria* U153 or A118 phage recombinase, or an actinophage R4 Sre recombinase.
16. (Original) The method of claim 15, wherein the irreversible recombinase is a bacteriophage φC31 integrase.

Claims 17-34 (Withdrawn)

35. (Original) The method of claims 1 or 17, wherein the eukaryotic cell is selected from a mammalian cell or a plant cell.
36. (Original) The method of claim 35, wherein the eukaryotic cell is a plant cell.

Claims 37-66 (Withdrawn)